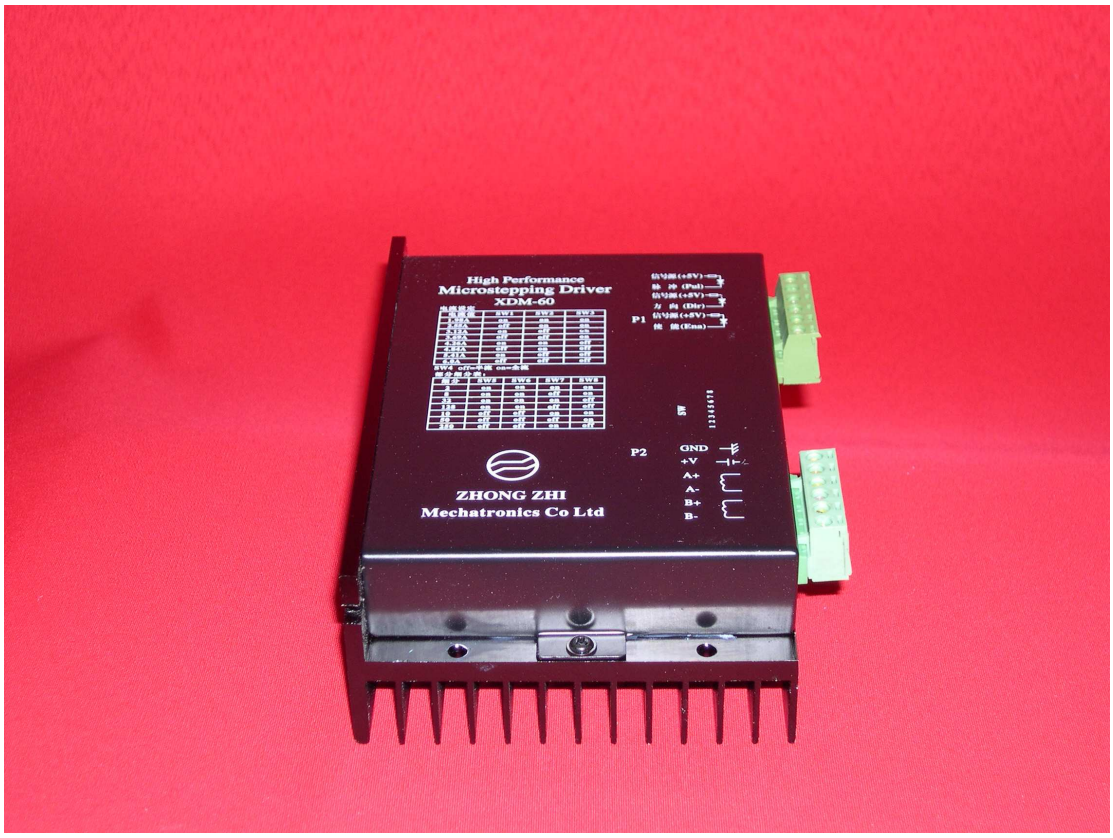
XDM-60

User Manual



Shenzhen Zhongzhi Mechatronics Co., Ltd

Read the manual carefully before operating the driver.

XDM-60
User Manual

XDM-60, a new constant-current bipolar chopper drive technology, suitable for driving any two-phase or four-phase hybrid stepping motor. Due to the internal drive to control the use of special techniques, taking into account the electrical properties of the high-low-frequency (high frequency, the motor running in a state of high-speed torque to increase by more than 20%; low frequency, the motor running at low speed, the noise reduction, smooth increase) . When to use the same electrical output than the other drive greater speed and power. Its overall performance leader in China.

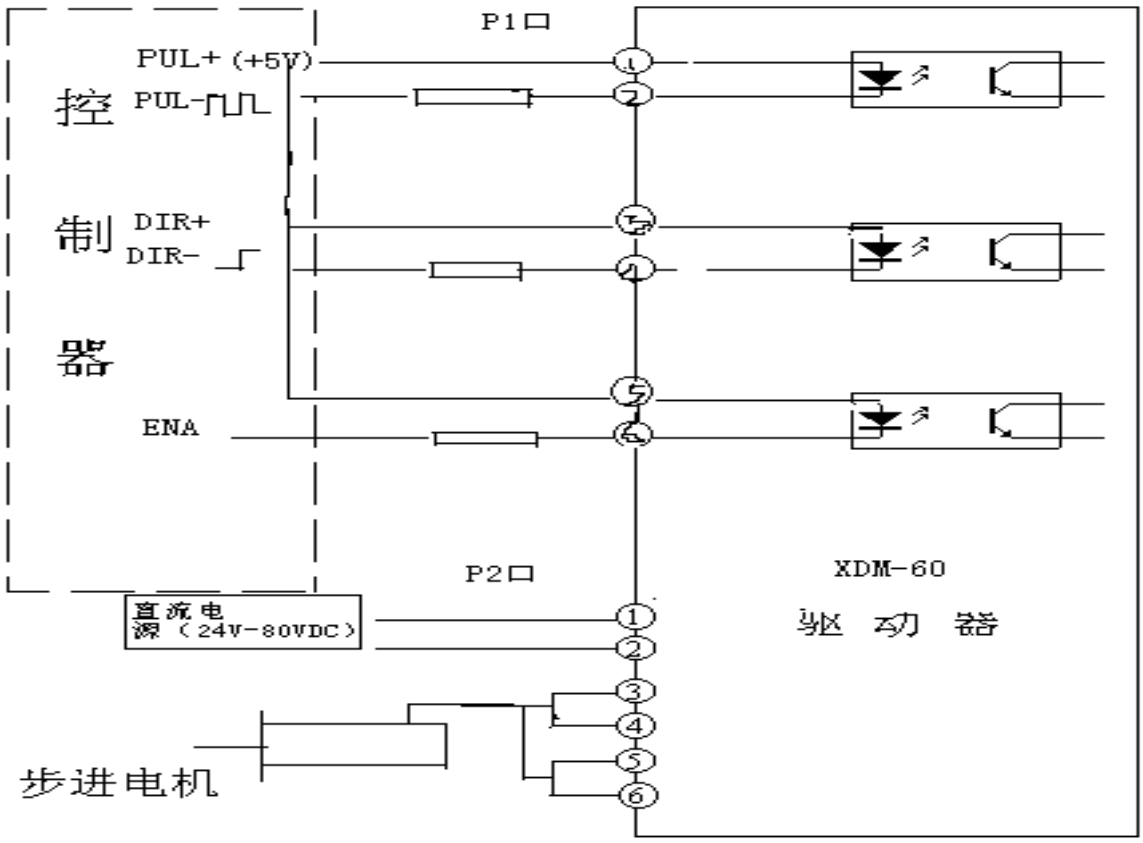
1. Features:

- high-performance, low price
- optical signal input isolation
- TTL-compatible input signals
- Bipolar constant current chopping mode
- static, the coil current automatically reduced by half。
- single-supply input +24 VDC-+80 VDC
- breakdown up to 2, 4, 8, 16, 32, 64, 128, 256, 5, 10, 25, 50, 250 Times the sub -

2. Applications:

This drives a wide range of applications, suitable for a variety of small and medium-sized automation equipment and instruments, such as: cutting the word machine, CNC machine tools, take place devices, pneumatic marking machines, labeling machines, laser marking machine, engraving plotter small machine, embroidery machine and so on, in particular, the user expectations of high-precision, high speed, low vibration, noise of equipment useful small.

3 Driver wiring diagram:



4. Pin definition:

P1 (6bit)		P2 (6bit)	
Pin number	Signal	Pin number	Signal
1	PUL+ (+5V)	1	GND
2	PUL- (PUL)	2	V+
3	DIR+ (+5V)	3	A+
4	DIR- (DIR)	4	A-
5	ENA+ (+5V)	5	B+
6	ENA- (ENA)	6	B-

5. Detailed pin functions:

P1 connection port

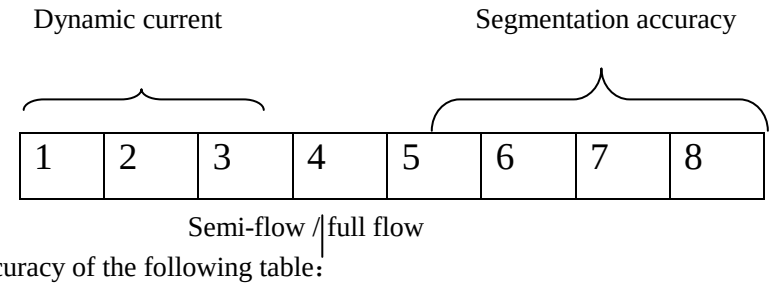
Pin No.	Signal	Function
1	PUL+（+5V）	Pulse signal: single-pulse control mode for the pulse control signal, when the pulse rising edge of efficient, double-pulse control is transferred when the pulse signal, pulse rising edge and effective.
2	PUL-（PUL）	
3	DIR+（+5V）	The direction of the signal: single-pulse control mode for the high / low-level signals, two-pulse control signal for the inversion pulse. Pulse rising edge and effective. Single / double-pulse control mode set by the controller to achieve internal jumper JMP row.
4	DIR-（DIR）	
5	ENA+（+5V）	En.signal: This input signal is used to enable / disable, enable high, low When the drive can not work, when not in use can be left vacant.
6	ENA-（ENA）	

P2：强电接线端口

Pin No.	Signal	Function
1	GND	DC power supply to
2	+V	Positive DC power supply +24 V-80V can be any value between the recommended value of about 70V
3，4	A+A-	A motor-phase
5，6	B+B-	Motor phase B

6. Breakdown and current settings:

The use of eight of the drive-side DIP switch settings, and its operating mode, the dynamic current, set by the 1-3 position, the fourth set quiescent current, OFF, said half of quiescent current, ON said quiescent current and dynamic current of the same。



（1） sub-set accuracy of the following table：

Sub-multiples	SW5	SW6	SW7	SW8
2	on	on	on	on
4	on	off	on	on
8	on	on	off	on
16	on	off	off	on
32	on	on	on	off
64	on	off	on	off
128	on	on	off	off
256	on	off	off	off
5	off	on	on	on
10	off	off	on	on
25	off	on	off	on
50	off	off	off	on
125	off	on	on	off
250	off	off	on	off

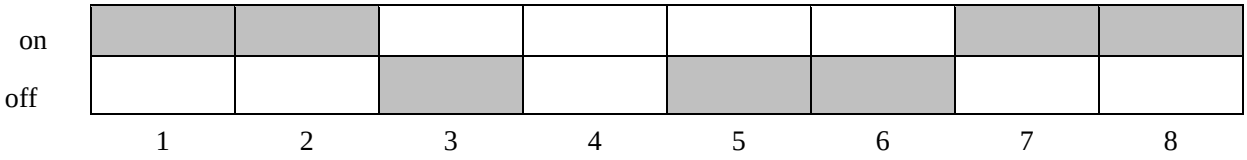
(2) Current settings：

Current value	SW1	SW2	SW3
2A	on	on	on
2.55A	off	on	on
3.14A	on	off	on
3.70A	off	off	on
4.28A	on	on	on
4.84A	off	on	off

5.42A	on	off	off
6.0A	off	off	off

（3）For example：

Need a motor drive XDM-60, set up as follows: accuracy = 2000 step-by-step breakdown / lap (10 sub-), the dynamic current = 4.28A, quiescent current = 2.1A



7. Power supply：

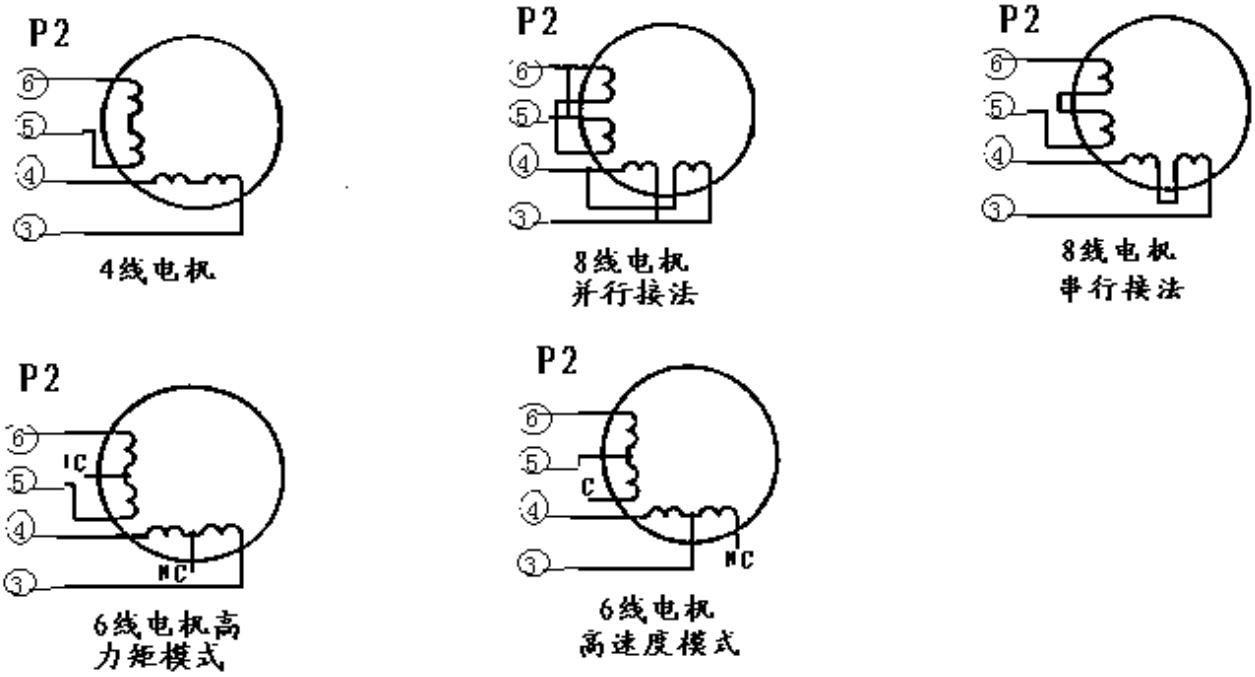
Supply voltage DC24V ——DC80V in between normal work can be, the best drive the use of non-regulated DC power supply. Peak ripple voltage can not exceed 80V, more than 80V may damage the drive. To avoid fluctuations in grid voltage drive over the scope of work。

Please note:

1. Connection when not to pay attention to positive and negative power reverse;
2. The power grid when the power supply voltage fluctuations should not exceed 80V;
3. The use of switching regulator power supply, its output current set to the maximum extent;
4 . the use of non-regulated power supply, the supply current output drive capability should be greater than 50% of current setting.

8. Electrical wiring：

The following is a 4-wire, 6 wire, 8 wire stepper motor connection:



9. Drive motor and the match:

XDM-60 Can drive any two-phase or four-phase motor drive in order to achieve the best results, it is necessary to build a reasonable set of supply voltage and current. Because of the high and low voltage power supply decided to motor speed, set the value of its current decision of the torque stepper motor. In general, the higher the supply voltage, the greater the torque motor high speed, high-speed when the swap will be able to avoid the step-by-step, but on the other hand, voltage too high will lead to over-voltage protection, and even has the potential to damage the drive at the same time, in the high-pressure work, its slow movement too much vibration.

Output current settings: (Note: The current value set after running 10-30 minutes) if the motor temperature is too high, they should change the current value, to reduce the。

The same motor, the greater the current settings, the greater the motor output torque, but when the current, the drive motor and a high fever. Therefore, the general situation is that the current supply is set to drive long-term work but when warm but when the heat values.

A: Four-wire electric motor and six-lane high-speed mode: the output current is set equal to or less than motor rated current value;

B: High-torque six-phase motor pattern: motor output current set to 70% of rated current;

C: Eight-line electrical connection in series: As the series resistance increases when the output current should be set to motor rated current of 70%;

D: Eight lines and electrical connection method: output current can be set to motor rated current of 1.5 times.

10 Pulse control mode settings: (the factory for single-pulse mode)

In the internal drive has a jumper Pin JMP1 (Figure 1) single-pulse mode, the jumper placed in row (Figure 2) double-pulse mode, jumper Pin placed (Figure 3) location.

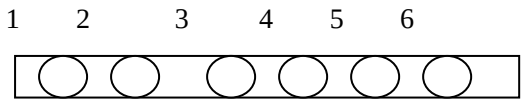


Figure 1

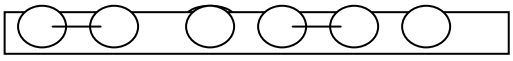


Figure 2

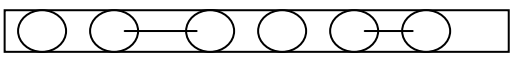


Figure 3

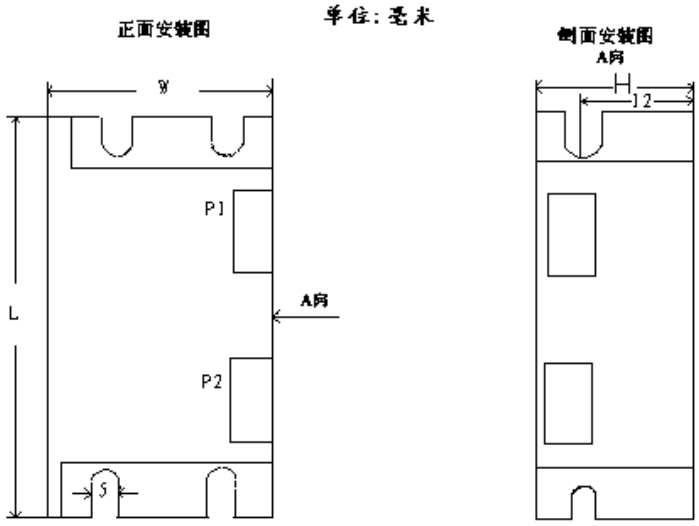
11. Electrical Characteristics: Tj = 28 ℃

Description	XDM-60			
	Minimum	Typical	Max	Units
Supply voltage (DC)	24	70	80	V
Output phase current	2	-	6	A
Logic input current	6	10	30	mA
Stepper pulse frequency	0	-	10M	KHz
Insulation Resistance	450			MΩ

12. The use of the environment and parameters:

Cooling method		Natural cooling or forced air-cooled
Use of environmental	Temperature	0℃——+50℃
	Humidity	45——90% RH
	Vibration	5.9m/s² Max
	Occasions	To avoid dust, oil mist and corrosive gases
Storage Temperature		-15℃——+60℃
Weight		About 900 grams

13. Mechanical installation size:



L=151MM W=100MM H=50MM